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Journal of the Society of Arts.

FRIDAY, JULY 31, 1857.

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ART TREASURES EXHIBITION.

The period fixed for the Society's visit to the Art Treasures Exhibition at Manchester, is the week commencing Monday next, the 3rd of August.

Arrangements have been made with the Great Northern Railway to take the members and their friends from London to Manchester and back, by any trains, *express* or otherwise, on and after the 1st of August, at a fare and a-half the double journey, viz., £2 12s. 6d., 1st class; £1 17s. 6d., 2nd class. The tickets to be available for seven days from the date of issue.

The Great Northern will also, if a sufficient number of members express their intention of going, run a special train on Monday, the 3rd of August, for their accommodation; but, to enable this to be done, the members should send in their names to the Secretary of the Society as early as possible.

The members are invited to a *Soirée* at the Royal Institution, Manchester, on Wednesday, the 5th of August. Ladies are invited.

Excursions will be arranged to visit some of the distant mills and manufactories.

It is proposed that the members and their friends should dine together on one day during the visit.

As in the case of the visit to Paris, persons duly proposed for membership will, though not actually elected, be admitted to all the privileges of the Manchester visit.

The Local Committee at Manchester have made the following arrangements:—

The Literary and Philosophical Society of Manchester have placed their rooms (George-street) at the disposal of the Society of Arts, where a reception room will be provided for the members, and proper officers will be in attendance to give information, and where communications may be addressed on and after the 27th July.

Permission has been granted for the members to visit the following warehouses, works, &c., during the week of the visit on showing their cards of membership:—

Warehouses.—S. Fletcher, Son, and Co., Manchester; J. and N. Philips and Co., Manchester; John Pender and Co., Manchester; Potters and Norris, Manchester; S. and J. Watts and Co., Manchester.

Iron Works, &c.—Edward T. Belhouse and Co., Manchester; Wm. Fairbairn and Sons, Manchester; P. Fairbairn and Co., Leeds; Joseph Lockett and Co., Strangeways Engraving Works, Manchester; Mather and Platt, Manchester; William Muir and Co., Britannia Works, Manchester; James Nasmyth and Co., Patricroft, Manchester; Parr, Curtis, and Co., Manchester; Peel, Williams, and Peel, Manchester; Platt (Brothers) and Co., Oldham; Sharp, Stewart, and Co., Manchester; Joseph Whitworth and Co., Manchester; Richmond and Chandler, Agricultural Implement Works, Manchester; James Walton and Co., Cardmakers, Denton.

Glass Works.—Percival, Yates, and Vickers, Manchester; Webb and Ellis, Manchester.

Mills and Manufactories.—Jas. Akroyd and Sons, (Worsteds, &c.), Halifax; Armitage and Ward, Manchester; Sir E. Armitage and Sons (Cotton), Manchester; Thomas Bazley (Cotton), near Bolton; Bradshaw and Hammond (Printworks), Levenshulme; Thomas Dickins and Co. (Spring Vale Dye Works), Middleton, near Manchester; Thomas Hoyle and Co., Mayfield Print Works, Manchester; Thomas Houldsworth and Co. (Cotton), Manchester; Kershaw, Leese, Sidebotham, and Co. (Cotton), Stockport; Marshall and Co. (Flax), Leeds; Oxford-road Twist Company (Cotton), Manchester; Samuel Radcliffe and Sons (Cotton), Rochdale; Titus Salt and Co. (Worsteds, &c.), Saltaire, Bradford; Seedley Printing Company, Manchester; P. Spencer (Alum Works), Pendleton; Richard Sykes, Bleach Works, Stockport.

Permission has also been received to visit the following Institutions:—

Royal Exchange (Reading Room). Portico (Library and News-room). Royal Infirmary. Ragged Industrial Reformatory Schools. Athenæum (Reading Room). Mechanics' Institution. Chetham's Library. Free Library. Peel-park Museum and Library. Manchester Corporation Water Works.

It is to be distinctly understood that the members have *not* permission to visit works where a manufacture is carried on of similar character to any in which they may be engaged or may be personally interested.

Members desiring any information respecting accommodation at hotels or lodgings, should apply to Mr. Haden, at the Offices of the Art Treasures Exhibition Committee, 100, Mosley-street, Manchester, with precise information as to the extent of accommodation, and the period for which it is required.

Members intending to join in this visit who have not already received their cards, may obtain them by application to the Secretary, at the reception rooms, Literary and Philosophical Society, Manchester. The Manchester Visit Committee will meet at the above rooms at 11 o'clock to-morrow (Saturday).

Members will have the privilege of introducing two friends, either ladies or gentlemen, to join the party, to whom cards will also be issued on the application of a member.

HONORARY LOCAL SECRETARIES.

The following gentlemen have been appointed Honorary Local Secretaries:—

Axon, William	for Chester.
Ainsworth, T. Crooke	,, Blackburn.
Barker, Dr. Herbert	,, Bedford.
Darlington, John	,, Bradford.
Felkin, William	,, Nottingham.
Holmes, Herbert M.	,, Derby.
Hume, Rev. Dr.	,, Liverpool.
Macready, W. C.	,, Sherborne, Dorset.
Newall, Henry	,, Rochdale.
Peel, George	,, Manchester.
Ratcliffe, C.	,, Wolverhampton.
Richardson, Dr. Thomas	,, Newcastle-upon-Tyne.
Ryland, Arthur	,, Birmingham.
Spiers, R. J.	,, Oxford.
Tartt, Wm. Macdowel	,, Cheltenham.
Wheatley-Balme, E. B.	,, Mirfield.

NOTICE TO INSTITUTIONS.

The Council having purchased from the Messrs. Longman a number of copies of the Society's Reports on Industrial Instruction, for the use of the Institutions in Union, the Secretary will be prepared to send copies, free of charge, to any of the Institutions applying to him for them.

DISTRIBUTION OF CERTIFICATES AND PRIZES (HUDDERSFIELD).

The Certificates and Prizes awarded by the Society's Examiners, at the examination held in Huddersfield during the first week in June, were distributed to the successful candidates on Wednesday evening the 29th inst., at the Riding School, Huddersfield. The Right Hon. the Earl Granville presided.

The Secretary read the following reports from the examiners:—

The Board of Examiners report, for the information of the Council, that the results of the recent Examinations held by the Society of Arts at Huddersfield for the members of the Mechanics' Institutions of the north of England in union with the Society, and for those pupils who had been instructed in affiliated schools, are highly satisfactory. For the details of the Examination they refer to the several reports of the Examiners in the different subjects and their subdivisions.

The Board of Examiners believe it to be their duty, whether as regards the future Examinations of the Society of Arts, or with reference to the interests of the young men themselves, to call public attention to those features which require amendment or alteration.

In the first place they would observe that while the answering in the special subjects was in many cases of a very high order, and displayed genius, industry, and research, yet the general style of answering in the preliminary papers, which were set with a view to test the handwriting and familiarity of all the candidates with correct spelling, the ordinary laws of English composition, and the common rules of arithmetic, was much below the standard which the Board of Examiners had agreed on. In these elementary subjects the average of the attainments of the candidates was below that of London. The Board of Examiners recommend that more attention be given to these "common things." On the acquirement of this simple elementary knowledge will often, in a great measure, depend whether the candidates ever shall have the opportunities afforded them of testing their industry and ability, as proved by their acquirements in higher branches of knowledge. In the eyes of an employer an acquaintance with algebra will not compensate for inaccuracy in common addition, nor will a profound knowledge of history much avail him who cannot spell.

They recommend that in future years the preliminary examination be made a stringent test of the attainments of the candidates in the rudiments of a common English education; that the examination of the preliminary papers do not take place during the progress of the examinations as at present, but that this duty be remitted to the Board of Examiners to discharge after the examination shall have been concluded, and that no credit be given to the special papers of any candidate who shall not, in his elementary examination, come up to a certain standard.

The experience acquired by the Board of Examiners, leads to the conviction that it would be desirable, wherever it may be possible, to define more strictly than has been done hitherto, the subjects of examination, and to recommend one or two cheap text-books, not more, that may easily be procured.

To give a wide choice of books is about equivalent to recommending none at all, for the means of the candidates will not admit of their purchasing a large number of books, and even if it were practicable, it would not be desirable, for a multiplicity of books tends rather to distract than concentrate the attention of the student. The candidates should not be left to grope their way without a guide, and to acquire by slow degrees, towards the end of their reading, that information with which they ought to have been furnished at the beginning. The Board, therefore, are of opinion that in all the subjects a definite line of examination ought to be laid down, to enable candidates to direct their reading in such a way as to lead them to concentrate their application, instead of being, as it is too often at present, loose, vague, and desultory.

The experience of the Board of Examiners leads them strongly to recommend that the local centres of examination next year, be not multiplied beyond those which may severally be taken charge of and personally superintended by at least one member of the Board. They believe that the Mechanics' Institutions, the commercial schools, and the public generally, will be better satisfied by the Society of Arts publicly and explicitly assuming the entire responsibility of these examinations.

The Board of Examiners strongly recommend to the Council that the subjects to be examined in next year—with as little alteration from the present scheme as possible—the Time-tables, with the selected "Centres of Examination," be made known to the public not later than the end of September, so that the Mechanics' Institutions, the commercial schools, and the other bodies connected with the Society, may have ample time to organize their classes for the Society's Examinations to be held throughout the country during Whitsun-week, commencing the 24th of May, 1858.

MATHEMATICS.

The Examiners in Mathematics at Huddersfield report as follows:—

"The subjects examined, the number of candidates in each, and the certificates awarded, will be found in the general tabular statement.

"While the results of the recent Examinations at Huddersfield are in many respects eminently satisfactory, it is, at the same time, proper to call attention to existing defects. Several of the candidates, in their haste to take up advanced subjects, have failed or neglected to master those elementary principles on which all real progress must be based. To fail in algebra and to answer well in trigonometry is inverting the natural order of sound mathematical attainment; a real knowledge of first principles is of far more value than a ready familiarity with the working of mere mechanical rules, as applied to the solution of the questions proposed.

"The Examiners have also remarked a general slowness and needless minuteness in working out their questions. Some candidates carried this so far as to copy out at length the printed questions themselves, instead of referring to them by their proper numerals. Others went through every step of the proofs with the most laborious precision. Thus several of the candidates, who did very well so far as they went, wasted the short time at their disposal. The Examiners would prefer the salient points, and the chief steps of the solution, to be given with neatness and brevity. To pick out the leading features of a proof indicates a much higher mastery of the question than is shown in setting out the entire demonstration. On this ground the Examiners believe, judging from the specimens of the work done, that, could more time have been given, the results would have been still more striking. The Examiners have been sparing in the award of first and second-class certificates. The rules previously laid down did not admit of a larger issue. It should be borne in mind that the certificates hold a higher grade than the prizes, and it is right that they should be so considered by the public. The certificates embody the formal decisions of the Board of Examiners on the respective merits of the several candidates, and this decision is confirmed by the authoritative sanction of the Society of Arts in its corporate capacity; while, whether prizes shall in addition be awarded must, in a great measure, depend on the contingent liberality of private persons from year to year.

"In arithmetic, the Examiners will be prepared to attach considerable importance to a ready familiarity with the properties of decimals, especially in their application to the monetary and other common business transactions of commercial life.

"JAMES BOOTH.
"CHARLES BROOKE.
"JAMES GLAISHER."

Book-keeping.

The Examiner in Book-keeping reports thus:—

"I consider that for the most part the papers sent in exhibited a want of application to the subject matter of examination, especially with regard to that portion of it which comprised the working out in a practical form of the supposititious transactions. In one instance only was this fairly done; in the majority it was scarcely done at all. But there were two or three instances in which the answers to all the other questions showed a praise-worthy and laborious pains-taking. On the whole I think these papers not satisfactory, and I have no objection to say that I consider the assignment of marks was governed by a liberal judgment with a view to avoid discouragement to the candidates; they are, on the average, decidedly inferior to the London Examination Papers.

"J. BALL."

Physics.

The Rev. A. B. Power, one of the Examiners in Physics, says:—

"In communicating to you, for the information of the Council, the result of my experience of the late examination held at Huddersfield under the auspices of the Society of Arts, commencing June 1, and continued during the four following days, my observations will be directed to two principal heads; first, as regards the general character and effect of the Examination, and, secondly, as relates to the department of Mechanics and Physics, in the conduct of which I have been associated with Mr. Brooke and Professor Goodeve.

"I have great satisfaction in stating my conviction, that the general result of the Examination held at Huddersfield will be found to equal the most sanguine anticipation formed of it; in estimating the value of the work accomplished on this occasion, and in judging of the merits of the papers, it must be remembered that this was the first attempt in the locality of the Northern Institutions; and to form a correct comparative estimate, reference should be made to the first Examination held in London, rather than to that of the present year. It will be found, no doubt, that many of the faults noticed last year in London have re-appeared at Huddersfield; but the same experience which has, to a great extent, corrected them in the first case will, in due course, remove them in the second. With this view, it will be desirable to have the directions and suggestions of the Examiners circulated among the Institutions at the earliest possible period before the formation of classes for the ensuing season. It was very obvious that many of the late candidates at Huddersfield were totally unaccustomed to the work of examination; they appeared to have but little idea of the method of using the limited time allowed for the papers to the best advantage, and the style of work, as regards writing and arrangement, was, in many cases, defective. It will be well to point out to the managers of Institutions the importance of some drill in this description of examination work, as several candidates might have taken a higher grade if these points had been understood. The general spirit which pervaded the Examination Rooms, and the feeling shown by the candidates were highly encouraging. It cannot be doubted, but that true earnestness of purpose animated the great majority, and that many will be found taking part in the struggle of future years, in the hope of higher success.

I endeavoured to carry out the programme of the examination in every particular. I am not aware of any single omission. I held *vivâ voce* examinations in every subject marked for such exercise; the results of these examinations, according to my estimates, I have forwarded for the information of my colleagues, and I hope that my awards will be in harmony with the character of the written papers.

"With regard to the special divisions of Mechanics and Physics, as the awards determined by the joint estimate of the examiners are already in your hands, I need only remark, that the papers will bear comparison with those worked in London last year, and that with further exercise in the details of examinations, the candidates may be expected to acquit themselves very well. It appears that greater attention is generally given in the north of England to pure than to applied mathematics; I believe Dr. Booth's experience will corroborate this statement. I found some of the candidates very well prepared to answer *vivâ voce* questions on trigonometry and conic sections, particularly the former; but I observed, when I attempted to connect these subjects with physics the candidates were not generally able to follow me. The physics papers plainly show that the candidates have not been accustomed to deal with experimental evidence, and I could not but see in this an indication of a want in the lecture arrangements of the majority of Institutions. If definite courses of lectures on experimental physics could be provided, with the aid of supplementary class teaching, a great improvement might be effected in this department, and advantage would accrue in many ways, which the object of this report will not permit me to speak of more at large; it will not be out of place, however, for me to commend this suggestion to the notice of the Institutions in Union. It is a matter well worth the consideration, too, of the proprietors and managers of the large and important works distributed throughout the Northern counties.

"I think it desirable further to add, that I have formed a strong conviction of the inexpediency of multiplying centres of examination beyond the limit that can be managed by the personal attention of the Board; in other words, that wherever an examination is held, there ought to be at least one member present who would be responsible for its proper management in all respects. This opinion is founded upon my general knowledge and experience of examination work, and the effect of irresponsible agency in such matters, rather than upon any observations at Huddersfield; for it is only just for me to say, that I was, at my late visit, most efficiently supported by the able secretary of the Institution, who was indefatigable in his attention to every requirement, and that I was also greatly aided by many members of the committee, to whom I feel that my warmest thanks are due. I would only further add, that it will be well to have not only the subjects, but the time, places, and order of the ensuing Examination published as soon as possible. The arrangement of the subjects I consider should be the same for all places; and I would suggest a few alterations in matters of detail, to which it would be scarcely expedient to allude in this report.

"A. BATH POWER."

Chemistry.

The Examiners in Chemistry report thus:—

"I find that the Huddersfield papers on Chemistry, though slightly inferior to those given in by the London competitors, are, with two exceptions, highly creditable to their authors.

"J. STENHOUSE."

Professor Solly adds:—

"I have not reported respecting the results of the Huddersfield Examination, because I had agreed with Dr. Stenhouse that he alone should report; lest, however, he may not have done so, I write to say that the chemial replies were, on the whole, satisfactory; they were certainly not so good as the replies given by the London candidates, which were remarkably good; but they were good and creditable replies. Probably the two sets of candidates were of different ages and circumstances; the latter were more like the replies of teachers, whilst the former appeared to be the replies of well-taught pupils.

"E. SOLLY."

ANIMAL PHYSIOLOGY.

The Examiner reports that only one candidate presented himself at this examination and returned answers to six of the questions; that these answers are all more or less defective, and evince only the most superficial knowledge of the subject, but as they are free from positive errors, the Examiner has awarded to them, collectively, ten per cent. of the marks assigned to the paper.

W. SHARPEY.

ENGLISH LITERATURE.

The Examiners in English Literature and English History, have to report to the Society of Arts that they have awarded first-class certificates to Candidates (299), (220), (288), (330), and second-class certificates to candidates (209), (246), in English Literature. First-class certificates to Candidates (227), (262), (215), (220), (259), (264), (267), (272), (288), (289), (257), (276), and second-class Certificates to candidates (274), (246), (208), (311), in English History. They recommend for a prize in English Literature, (299), and in English History, (227). They wish further to state that the results of the examinations in both subjects have been highly satisfactory, and much exceeded their expectations.

The papers sent in by candidates in both subjects were deserving of unqualified approbation; they displayed, not only great care and accuracy, but an amount of thoughtfulness the examiners were not prepared to anticipate. Indeed, the answers of those candidates whom the examiners have recommended for prizes and certificates of the highest class, especially in English History, have not, in their experience, been surpassed by any class of candidates in similar subjects.

The Examiners would be very happy, if such were the condition of examinations generally, to submit these papers to any gentlemen who might wish to peruse them; observing at the same time that only a very limited period of three hours was allowed for answering the questions in English Literature, and two papers containing questions in English History.

The difficulty of these questions may be tested by the printed papers.

The Examiners have already had to return to the Society a very favourable report of the improvement at the London Examinations, and they consider those of Huddersfield in no degree inferior.

JOHN BREWER.
F. TEMPLE.
T. DUFFUS HARDY.

FRENCH.

The Examiner in French reports:—

"I herewith return you the Huddersfield French papers I have examined, and am happy to be able to report favourably of not less than ten candidates out of the seventeen. I beg to recommend Nos. 312, 227, 266, and 235 for a certificate of excellence, Nos. 322, 255, and 236, for a certificate of proficiency, and for a certificate of competency, Nos. 282, 238 and 295. With such a result, I think we have reason to be very satisfied, when we recollect what very little encouragement has been given, up to the present time, to a proper and efficient study of the modern classical languages, and when we bear in mind the many difficulties which stand in the way of the great mass of our young men, for the acquirement of a foreign dialect, even when that dialect is no other than the French. It is quite gratifying to trace in the papers of Nos. 266, 235 and 255, the same conscientious and persevering application which they first evinced in their oral examination as reported by M. Brocard, who kindly conducted the oral examinations at Huddersfield, in my unavoidable absence. I have also noticed with pleasure throughout most of those papers from young men evidently self-taught, the total absence in their answering grammatical questions, of that abstract and subtle phraseology with which it is too often the lot of pupils, under a more regular training, to have their memory burthened to the detriment of their better faculties. In short, the quality of the French papers (decidedly superior to those of the London candidates,) is upon the whole, and of course relatively speaking, very good and very promising.

"A. MARIETTE."

GERMAN.

The Examiner in German, says:—

"The paper of 267 is as creditable as any I have received from the London candidates, and the work of 243, 231 and 238, very promising."

"A. BERNAYS."

GEOGRAPHY, DESCRIPTIVE AND PHYSICAL.

The Examiners in Geopraphy report that the answering of the Huddersfield candidates was, upon the whole, satisfactory. At the same time, they feel bound to observe that the answering of some of the candidates was very unequal; that is, mistakes were made in simple things, while difficult questions were answered elaborately, and a very considerable amount of reading and research displayed in their treatment. They would also call attention to the fact that few, if any, of the candidates, either in London or Huddersfield, could draw from mere memory, without the aid either of map or book, an accurate map on a large scale, with the mountains, rivers, chief divisions and principal towns filled in with precision as regards latitude, longitude, and elevation. But, unless a candidate can do this for a large majority of the countries on the earth's surface, he cannot be said to have attained to proficiency, much less to excellency, in his knowledge of descriptive geography. The attention of the managers of mechanics' institutions and commercial schools ought to be drawn to this omission.

In physical geography the answering was very good, several of the candidates having received credit for the greater part of the questions. It may, however, be worthy of consideration, whether geology should not be separated from physical geography, and made a separate subject of examination.

J. BOOTH,
W. HUGHES.

Mr. W. HUGHES, who conducted the oral examination of the candidates in geography, at Huddersfield, thus reports:—"Fifteen candidates presented themselves for the examination in descriptive, and sixteen in physical geography. I was, upon the whole, well satisfied with their answers to the *vivâ voce* questions which I put, and I consider several of the number entitled to a full proportion of the total number of marks which it is agreed to award to high attainments in the oral portion of the examinations. I may observe that I found a warm interest excited in Huddersfield by the Society's proceedings, and am confident that a knowledge of the results of the examinations is awaited there with anxious expectation."

"W. HUGHES."

LATIN AND ROMAN HISTORY.

The Examiners in Latin and Roman History recommend that the candidates be placed in the order set down in the schedule.

The standard of attainment, indicated by these certificates, is not a high one, but the papers of several of the candidates are creditable for (apparently) self-taught men, and only wanted greater accuracy to obtain a higher number of marks.

R. W. BROWNE.
FRANCIS R. SANDFORD.

Lord Granville then addressed the Meeting, after which, the Rev. Dr. Booth, Chairman of the Board of Examiners, introduced the successful Candidates to his Lordship, who presented them with their respective Prizes and Certificates as below.

PRIZES.[*]

Bower, James	Darlington Mechanics' Institution.
Broadbent, Allan	Huddersfield Mechanics' Institution.
Charleton, John	Newcastle Church of England Institute.[†]
Coleman, Joseph James	Halifax Mechanics' Institution.
Connon, William	Ings-house Academy, Wakefield.
Harrison, William	Bradford Mechanics' Institution.
Heslop, Henry Penn	RiponMechanics' Institution.
Hield, Sam	Leeds Mechanics' Institution.[†]
Hirst, James Binns	Huddersfield Mechanics' Institution.
Hough, Joseph	Leeds Mechanics' Institution.[†]
Leake, Joseph	Huddersfield Mechanics' Institution.[†]
Lister, Alfred	LeedsMechanics' Institution.
Long, J. P. Atkins	Ings-house Academy, Wakefield.
Naylor, John, jun	Halifax Mechanics' Institution.
Scarborough, Thomas Smith	Halifax Mechanics' Institution.
Schofield, Abraham	Wakefield Mechanics' Institution.

FOR DRAWING.

Booth, Amos	Huddersfield Mechanics' Institution.[‡]

CERTIFICATES.[§]

ARITHMETIC, 33 Candidates.

Alverthorpe Hall School:—Michael Shillito (P).
Darlington Mechanics' Institution:—James Bower (P).
Dewsbury Mechanics' Institution:—Daniel O'Leary (C).
Haley Hill Working Man's College:—Isaac Bairstow (C), Richard Cockroft (P), Barzillai Greenwood (C), Michael Broadbent (C), James Spencer (C).
Holmfirth Mechanics' Institution:—Matthew Haigh (P).
Huddersfield Mechanics' Institution:—Alfred Mills Blackburn (C), Thomas Broadbent (P), Charles Glendinning (P), James Hartley (C), Joseph Leake (P).
Ings House Academy:—William Connon (E).
Leeds Mechanics' Institution:—Charles Thomas Barnes (C), Sam Hield (E), Joseph Hough (P), Alfred Pickard (C).
Making-place Hall School:—Roberts Bottomley (C), Adam Clarke Cottam (P), Joe Crowther (C), Walter Whitehead (C).
Mossley Mechanics' Institution, (Y.U.):—John Pogson (C).
Wakefield Mechanics' Institution:—Joseph Albert Dear (P), Abraham Schofield (E).

BOOKKEEPING, 18 Candidates.

Halifax Mechanics' Institution:—John Leach (P).
Huddersfield Mechanics' Institution:—Charles Glendinning (P).
Leeds Mechanics' Institution:—Sam Hield (P).
Making-place Hall School:—John Sagar Veevers (C).
Wakefield Mechanics' Institution:—Abraham Schofield (C).

ALGEBRA, 28 Candidates.

Alverthorpe Hall School:—Michael Shillito (P).
Darlington Mechanics' Institution:—James Bower (C).
Dewsbury Mechanics' Institution:—Daniel O'Leary C).
Haley Hill Working Man's College;—Isaac Bairstow (P), William Birkbeck (C), Barzillai Greenwood (C).
Huddersfield Mechanics' Institution:—Thomas Broadbent (C).
Ings House Academy:—William Connon (P).
Leeds Mechanics' Institution:—Sam Hield (C), Joseph Hough (E), Alfred Pickard (P).
Making-place Hall School:—Joe Crowther (P), Thomas John Denton (C), George Edward Gee (C), Edward Herring (C), George Lord (P).
Wakefield Mechanics' Institution:—Joseph Albert Dear (C), Abraham Schofield (C).
York Mechanics' Institution:—Henry Irwin Jenkinson (C).

GEOMETRY, 24 Candidates.

Alverthorpe Hall School:—Michael Shillito (P).
Darlington Mechanics' Institution:—James Bower (C).
Dewsbury Mechanics' Institution:—Daniel O'Leary (P).
Eccleshill Mechanics' Institution:—Benjamin Baxter (C), Joseph Jowett (C).
Haley Hill Working Man's College:—James Spencer (C).
Holmfirth Mechanics' Institution:—Matthew Haigh (P).
Huddersfield Mechanics' Institution:—Thomas Broadbent (P).
Ings House Academy:—William Connon (P), J. P. Atkins Long (E).
Leeds Mechanics' Institution:—Sam Hield (P), Joseph Hough (E), Alfred Pickard (C).
Making-place Hall School:—George Edward Gee (C), Edward Herring (C), Robert Hutchinson (C), George Lord (P).
Mossley Mechanics' Institution (Y.U.):—John Pogson (C).
Wakefield Mechanics' Institution:—Abraham Schofield (C).
York Mechanics' Institution:—Henry Irwin Jenkinson (P).

MENSURATION, 19 Candidates.

Black Dike Mills Literary Institution:—William Dockray (C).
Darlington Mechanics' Institution:—James Bower (C).
Dewsbury Mechanics' Institution:—Daniel O'Leary (C).
Huddersfield Mechanics' Institution:—Alfred Milnes Blackburn (P), Thomas Broadbent (C), Joseph Leake (E), William Lockwood (C).
Ings House Academy:—William Connon (C), J. P. Atkins Long (P).
Leeds Mechanics' Institution:—Sam Hield (C).
Wakefield Mechanics' Institution:—Abraham Schofield (E).
York Mechanics' Institution:—Henry Irwin Jenkinson (E).

TRIGONOMETRY, 12 Candidates.

Huddersfield Mechanics' Institution:—Thomas Broadbent (P).
Ings-house Academy:—William Connon (E), J. P. Atkins Long (E).
Leeds Mechanics' Institution:—Sam Hield (C), Joseph Hough (E), Alfred Pickard (P).
Making Place Hall School:—George Lord (P).

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[*] Each Prize consisted of a set of books, of the value of £4, to which, in certain special cases, a money prize was added.

[†] Money Prize of £5 5s. added.

[‡] Money Prize of £5 5s., and "Fergusson's Hand-book of Architecture."

[§] In this list (E) after a name signifies a Certificate of Excellence, (P) of Proficiency, (C) of Competency.

Mossley Mechanics' Institution, (Y.U.):—John Pogson (P).
Wakefield Mechanics' Institution:—Abraham Schofield (P).
York Mechanics' Institution:—Henry Irwin Jenkinson (P).

Conic Sections, 5 Candidates.

Alverthorpe-hall School:—Michael Shillito (P).
Leeds Mechanics' Institution:—Joseph Hough (C).

Nautical Astronomy, 3 Candidates.

Leeds Mechanics' Institution:—Joseph Hough (C).

Statics and Dynamics, 7 Candidates.

Ings-house Academy:—J. P. Atkins Long (C).
Leeds Mechanics' Institution:—Joseph Hough (C), Alfred Lister (P), Edmund Outram (C).

Practical Mechanics, 6 Candidates.

Huddersfield Mechanics' Institution:—Thomas Broadbent (C).
Leeds Mechanics' Institution:—Edmund Outram (P), Joseph Hough (P).

Hydrostatics and Pneumatics, 4 Candidates.

Ings House Academy:—J. P. Atkins Long (P).
Leeds Mechanics' Institution:—Alfred Lister (P), Edmund Outram (C).
Northallerton Mechanics' Institution:—John Stamford Walton (P).

Electricity, 3 Candidates.

No Certificates awarded.

Heat, 4 Candidates.

Ings House Academy:—J. P. Atkins Long (P).
Leeds Mechanics' Institution,—Alfred Lister (P), Edmund Outram (P).
Northallerton Mechanics' Institution:—John Stamford Walton (C).

Chemistry, 7 Candidates.

Halifax Mechanics' Institution:—Joseph James Coleman (E).
Making-place Hall School:—George Edward Gee (P), Edward Herring (P).
Northallerton Mechanics' Institution:—John Stamford Walton (P).
Wakefield Mechanics' Institution:—Samuel Brewer Brooks (P).

Physiology, 1 Candidate.

No Certificate awarded.

Botany.

No Candidates.

Agriculture.

No Candidates.

Political and Social Economy, 1 Candidate.

Wakefield Mechanics' Institution:—James Edward Blakeney (C).

English History, 17 Candidates.

Bradford Mechanics' Institution:—William Harrison (E), William Jaques (E), Benjamin Raby (C).
Halifax Mechanics' Institution:—Joseph Greenwood (E).
Huddersfield Mechanics' Institution:—Alfred Milnes Blackburn (E), Allan Broadbent (E), Allen Earnshaw (P), John William Haigh (E), Joseph Leake (E.)
Leeds Mechanics' Institution:—Charles Thomas Barnes (P), Sam Hield (E), William Knapton (C), Alfred Lister (E).
Mossley Mechanics' Institution:—Joseph Howard (E).
Newcastle Church of England Institute:—John Charleton (E), Richard William Henzell (E).
Sheffield People's College:—Edmund Hutchinson (P).

Geography, 15 Candidates.

Bradford Mechanics' Institution:—Benjamin Raby (P), George Peacock (P).
Darlington Mechanics' Institution:—James Bower (E).
Eccleshill Mechanics' Institution:—Benjamin Baxter (C).
Huddersfield Mechanics' Institution:—John Berry (P), Charles Glendinning (C), William Hilton (C), James Binns Hirst (E), Thomas Walker (E).
Liverpool Collegiate Institution:—Thomas Eccleston Gibb (C).
Leeds Mechanics' Institution:—Alfred Lister (E), Edmund Outram (P).
Northallerton Mechanics' Institution:—John Stamford Walton (P).

English Literature, 9 Candidates.

Huddersfield Mechanics' Institution:—Thomas Barrett (P), Allan Broadbent (E), Allen Earnshaw (P), Joseph Leake (E), James Brignall Walton (C).
Halifax Mechanics' Institution:—John Naylor, jun., (E).
Making-place Hall School:—John Sagar Veevers (E).

Roman History and Latin, 7 Candidates.

Bradford Mechanics' Institution:—William Wilcock (C).
Ing's House Academy:—William Connon (P).
Leeds Mechanics' Institution:—Alfred Pickard (C).
Liverpool Collegiate Institution:—Thomas Eccleston Gibb (C).
Sheffield People's College, Edmund Hutchinson (E).

French, 17 Candidates.

Huddersfield Mechanics' Institution:—William Kilner (C), Richard Thomas Marsden (C).
Halifax Mechanics' Institution:—Thomas Smith Scarborough (E).
Newcastle Church of England Institute:—John Charleton (E).
Oldham Lyceum:—Thomas Crellin (E), William Steeple (P).
Ripon Mechanics' Institution:—Henry Penn Heslop (E).
Sheffield People's College:—John Cuttell (C).
Wakefield Mechanics' Institution:—Matthias William Crossley (P), Arthur Goldthorp (P).

German, 8 Candidates.

Halifax Mechanics' Institution:—John Cordingley (P).
Huddersfield Mechanics' Institution:—Samuel Donkersley (E), John William Haigh (P).
Leeds Mechanics' Institution:—James Denton (P), Sam Hield (E), William Knapton (P).
Sheffield People's College:—John Cuttell (C).

Drawing.*

Huddersfield Mechanics' Institution:—Amos Booth (E).

NATURE PRINTING.

The King of Prussia has presented Mr. Henry Bradbury with a large gold medal, for the work entitled "The Ferns of Great Britain and Ireland," illustrated by his process of nature printing.

Home Correspondence.

◆

UTILISATION AND TRANSPORT OF FÆCAL MATTER.

Sir,—There is a very pretty quarrel between Mr. Chadwick and Mr. Sidney on the subject of the "Application of Sewage Water to Cereal Crops." The positive and negative are both in the superlative.

Of the value of human excreta there seems to be no dispute. The average individual produces about 10lbs. of ammonia per annum, equivalent to two bushels of wheat, value, say 12s. This I gather from the paper of Mr. Lawes, the philosophic practitioner. But this is with the ammonia on the land. The cost of getting it there is so much subtracted from its intrinsic value.

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* Returns not complete.

Mr. Chadwick insists that the cheapest mode of transit is to mix the excreta with many times their bulk of water—dilute them to an excess which, "Mr. Campbell's bailiff at Rugby says, makes them too weak, except in very dry weather, to be of any value."

"The sewage liquid manure is so weak they only use it to wash in guano or soot. They tried it with roots the first year and made a complete failure. They never dreamed of applying it to wheat—knew better." Still, however weak, if the whole of the excreta were in it, at the end of the year 10lbs. per head of ammonia must have been deposited—good cereal manure.

Now it would be very unfair to deny to Mr. Chadwick very considerable merit for his constant agitation of this sewage question. There can be no doubt that he has been very instrumental in his Board of Health capacity in drawing public attention to it, and he has pointed out very clearly the importance of making drains and sewers as non-porous as the pans of water-closets. But his merit seems to end in his becoming the partisan of a vicious system of pipe drain pedantry, arising from a want of comprehensive reasoning on his datum fact—the water closet,—of which his pipe drainage is but the enlargement—an elongated water closet—just as the old sewers and drains were by him designated "elongated cesspools."

The water closet is exceedingly cleanly and neat as regards the individual house of the wealthy man on the eminence. Mr. Chadwick will say this is far better than the saturation of soil around porous cesspools beneath or around the house. Quite true; but the Stygian river must crop out somewhere, and so in the case of London it finds it way into the Thames. It is said that only one-fifth of the London houses are water-closeted. What the results of this has been in the river we can appreciate, and what the result of the other four-fifths would be, we may imagine.

So far, Mr. Chadwick's system of pipe drainage—supposing it perfectly free from scrubbing brushes, and grease, and broken joints, and cracked pipes, and other difficulties,—so far it must end in a congregated monster nuisance, like the Kiln burn at the head of the Serpentine in former times. Mr. Chadwick had to provide for this, and consulted Mr. James Smith of Deanston, who told him of the marvels wrought by flooding the descending grassy slopes near Edinburgh with the "Foul burn." An experiment had to be made, and Manchester was selected, a town then purely of "middens"—fœcal matter deposited on ashes in shallow cesspools. A barge was fitted with an engine and pump, and another barge was filled partly with the contents of the middens, and towed along the canal to the farming districts. There the fœcal matter was made liquid with the canal water and ready to be pumped through hose on to the farmers' fields. But the liquefiers and the farmers could not understand each other till a local agent undertook the operation, and by the liquid emollient of "Yeale," administered at evening meetings, accomplished the feat.

In this case the cost of transporting water for liquefying was avoided, and the transport of the fœcal matter was arranged in a very cheap mode. It would be well to know if the practice is continued, and, "if not, why not?"

There can be no doubt that soil can be better saturated with chemical ingredients or manure in a liquid than without a liquid, and Mr. Chadwick has rightly insisted on this. But it is also probable that it is not desirable to exhibit liquid manure to every variety of growing crops. Mr. Chadwick draws a distinction between submersion and infiltration, asserting that the former was the process of James Smith, of Deanston—who, however, is not alive to testify, though Southwood Smith is—and the latter is his (Mr. Chadwick's) process. The difference is not very great; in one case the liquid is run upon the land, in the other it is made to fall in artificial rain, —both external applications. The better plan would probably be to inject the land below the surface, and not necessarily with liquid. It is quite probable that the chemical ingredients may, many of them, be ultimately applied in the gaseous form, and what the results would be of the destructive distillation of a ton of coal for the purpose of depositing the gaseous products, heat inclusive, under the soil for manure, we have yet to learn.

Mr. Chadwick's agricultural propositions grew, very naturally, out of his exclusive belief in water cleansing, and as his foul water increased in quantity it was needful to provide a receptacle for it. "The soil, the land, is the proper receptacle," said James Smith, of Deanston. "I have used the excreta of my cotton mills at Doune for years past. On the neighbouring land, the day's product was carried forth in a moveable receptacle at the day's end." But James Smith did not dilute it a thousand fold with the water of the Feith for the purpose of facilitating carriage. He was too wise for that. Mr. Chadwick, on the contrary, thinks the more water the better, and as the whole of London gets to be closeted, the result will be that the whole of the Thames water will have to be pumped up above bridge, to be filtered through farms innumerable, and discharged again below bridge. Now, it is quite right that all the London excretæ should be deposited in the soil where vegetables grow, but *non constat* that Mr. Chadwick's method of transport is the cheapest or the best, and moreover it is not even practicable in large towns without rivers. In round numbers, the fresh fæces of all the population of London is 150 tons per diem, and the urine is 1,500 tons. As manure, the greatest value is in the urine and not in the fæces. But the fæces are the main source of the pollution of sewage water, and if the fæces and urine could be kept wholly out of the sewers, all other matter, less the refuse of gas and other chemical works, might be permitted to run into the river without scathe.

It is, therefore, to chemistry, in neutralising, and not to the mechanical action of water in transporting, that we must look forward for a remedy. If the fæces be kept dry, and free from liquid, other than antiseptic material, they will not putrify; and, by dint of convenient receptacles, may be carted away without nuisance, either for manure or for consumption in the gas retorts. The urine, in which the great manurial value consists, can be easily transported, either by pipes or in barrels, and be diluted on the farms at a cheaper rate than in London. It is not the question of liquid manure that is at issue, but the question whether it is advisable to make putrid a thousand gallons of water in London, for the sake of transporting a pound of fæces to Tiptree or elsewhere. If every city were situated on a hill, with an ample water supply, and surrounded with grass land, it might be possible to irrigate with less evil than is said to exist in Edinburgh; but, for the removal of solid material, I apprehend fire will prove a more useful agent than water, and possibly coal smoke underground may prove as beneficial to vegetation as coal-smoke in the air is mischievous.

Mr. Chadwick, in his last letter, gives, by his peculiar phraseology, the impression that Mr. Sidney and others are actuated by the desire to "promote professional and trading interests;" this is scarcely logic. All men are actuated by some interest or other, and surely the salary of Mr. Chadwick, at the Board of Health, was as strong a professional interest as that of Mr. Wicksted at Leicester. Mr. Chadwick had to maintain his *status* by exhibiting work done and performed—paid labour, and not mere labour of love, and his results are as open to the challenge of interested inaccuracy as those of any other individual. A general will work very hard sometimes, to prove that, notwithstanding his ill-success, he and his officers and troops are perfect and faultless, lest "Othello's occupation be gone." The occupiers of public positions are subject to the same defects as those who occupy private ones; and government occupation does not necessarily convert a mere human being into an angel of light, speckless and flawless. Let us, therefore, deal in facts and speculations, and eschew imputations, sinking the individual in the office, though allowing everyone to claim his own specific share of a general operation, without supposing that the nominal head does everything, or that James Smith of Deanston did nothing but propose a wheel 200 feet in diameter. He also was an agitator, certainly not second in value to Mr. Chadwick.

I am, &c.,
W. BRIDGES ADAMS.

1, Adam-street, Adelphi, July 25, 1857.

DECIMAL QUESTION.

Sir,—In the report of the meeting of the Society of Arts, held on the 24th inst., contained in the last number of the Society's *Journal*, Mr. Miller applies to a portion of my evidence before the Decimal Coinage Commission, the terms "perverse" and "unjustifiable," and, after quoting the two questions and answers, Nos. 435 and 436, adds "he did not say that Mr. Haggard might not have said what was imputed to him, about the time of the inception of this new mode; but mere after-dinner gossip, uttered years ago, was not fit matter for evidence on so grave a subject now, especially when Dr. Gray might have assured himself of the facts with very little trouble."

I can only account for the "perverseness" of this statement of Mr. Miller's, "which," let me assure you in his own words "is altogether unjustifiable," on the supposition that he feels the shoe pinch, and despairs of ridding himself of the pressure. The short sentence which I have quoted from his speech, is replete with misstatements. Firstly, Mr. Haggard's statement was not made "about the time of the inception of this new mode," but nearly two years after it came into operation. Secondly, it was no "after-dinner gossip," but a plain straightforward business communication. I have had the pleasure of Mr. Haggard's friendship for 30 years; and can safely testify of him, that he is not a man to make inaccurate or random after-dinner observations, such as Mr. Miller has permitted himself to indulge in, at the meeting of your Society. Thirdly, the statement, when published by me, had not been "uttered years ago," but had been made to me only a few days before the publication of my pamphlet in which it appeared; and if any one is to blame, (which I do not perceive) for its reappearance in my evidence before the commission, it is Mr. Hubbard, one of the commissioners, whose mode of examination, founded on my pamphlet, compelled me to repeat what I had already stated in it. Fourthly, I had "assured myself of the facts" on the subject before I was examined. I had found, moreover, that Mr. Miller had been doing all in his power to obtain a contradiction of Mr. Haggard's statement on authority; and further, that two of the officers of her Majesty's Mint agreed with Mr. Haggard in considering the decimal weight as a disadvantage rather than an advantage, in conducting the business of that establishment. I may add, what it will not be difficult for your readers to perceive, that if Mr. Miller had possessed the means of making a good reply to the statement, he would not have descended to the language which he has thought fit to use, and which I would never have repeated, except in the way of retort.

The subject of the use of decimal weights in the bullion office of the Bank of England, has little bearing on the question of decimal coinage, and would never have been referred to by me, had it not been dragged into the discussion by Mr. Miller and his friends. But now that he has compelled me again to refer to it, I will, with your permission, ask that gentlemen a few questions in relation to it. Will he be so good as to inform your readers:

Firstly. Whether the number of persons employed in the bullion office has not been increased since the introduction of the decimal system of weights, after making all due allowance for any increase that may have been caused by a larger quantity of gold passing through it?

Secondly. Whether any bullion brokers make use of the decimal weights, except in their transactions with the Bank. Whether these brokers do not adhere to the old system of troy weights in all their bank transactions, relating to silver?

Thirdly. Whether goldsmiths and jewellers do not still continue to use troy weight both for gold and silver?

Fourthly. Whether the introduction of the decimal weights did not necessitate the calculation of an entirely new set of tables of the value of foreign coins, for the use of the Bank itself?

Fifthly. How the grain troy (the only weight that will compare with avoirdupois) is to be expressed in the decimal system used at the Bank?

And, lastly, whether the mere cost of a set of weights, representing the decimal subdivisions and multiples of an ounce, say from ·001 to 500 ounces would not require a very large extent of business, like that of the Bank of England, to reimburse the outlay?

I purposely abstained from being present at the meeting, because I suspected what the tone and temper of the discussion would become. "Nonsense," and "twaddle," terms used by Mr. Miller, to designate arguments which he mis-states, might easily be retorted upon himself. I think, for instance, that it would hardly be possible to produce a stronger example of "twaddle" than the wonderful arithmetical discovery which he imparted to the meeting ("to put beyond all question the superiority of the decimal over the present scale, so far as the divisibility of the prices they afford") viz., that the scale of numbers up to 1,000 affords greater number of divisions by the prime numbers than the scale up to 960. Perhaps it may surprise him to learn that the same fact might be adduced to "put beyond all question the superiority" of the guinea unit with its 1,008 farthings over the pound unit with 1,000 mils, and, *à fortiori*, the vast superiority of a unit divided into 10,000 or 100,000 parts.

I refrain from alluding to any other point brought before the meeting, because I find little novelty in any of the arguments employed by the promoters of the pound-and-mil scheme, and because they entirely avoid the practical part of the subject. I can but hope that the time will come when they will descend from the abstract to the practical, and that the examination of the facts of ordinary trade will convince them, if they are open to conviction, of the error of their ways.—I am, &c.,

British Museum, July 28th. J. E. GRAY.

DECIMAL QUESTION.

Sir,—Will you allow me a small space for a remark upon your report of the discussion which was held last Wednesday at the Society of Arts?

Your concluding paragraph would lead the reader to suppose that the second of those questions was disposed of as well as the first. This was not so understood by the meeting. An adjournment *sine die* took place whilst the second question was still under discussion, and, I presume, that when the adjourned meeting is held an opportunity will be afforded for a further expression of opinion. The observations of the speakers on the late occasion were all one-sided, with the exception of those of Mr. Meekins. But the diversity of opinion on this question, that of the best monetary unit, was very great. —I am, &c., JAMES YATES.

Highgate, July 25th.

Proceedings of Institutions.

◆

Crosby Hall Evening Classes.—The young men constituting these classes made their annual excursion on the 23rd inst. to Hampton Court, under the direction of their friend and founder the Rev. Charles Mackenzie. The weather was singularly favourable for the attractions of the palace, and the presence of a large party of ladies, who took an active interest in the arrangements of the day, added greatly to the general success of the entertainment. A dinner took place on the occasion, and the chairman, in the course of a speech referring to the merits of the Institution, congratulated its supporters that it was free from debt, and that the pupils had greatly distinguished themselves at the recent examinations before the Society of Arts.

To Correspondents.

ERRATA.—In the last number but one of the *Journal*, page 498, col. 1, line 25, for "human blood" read "ox's blood," and page 499, col. 1, line 11, for "manure" read "measures."

PARLIAMENTARY REPORTS.

SESSIONAL PRINTED PAPERS.

PAR. NO.

Delivered on July 18th and 20th.

174. Netley Hospital—Returns.
124. Bills—Public Health Act (1848) Amendment.
117. ——— Clerks of Petty Sessions (Ireland).
120. ——— Commons Inclosure.
127. ——— Police (Scotland).
128. ——— Banking (amended).
129. ——— Boundaries of Land (Ireland) (amended).
130. ——— Industrial Schools (as amended in Committee, on re-commitment, and on consideration of Bill, as amended).
131. ——— Attorneys and Solicitors (Colonial Courts) (amended on re-commitment).
131. ——— Canada and New Brunswick Boundaries.
133. ——— Chelsea New Bridge.
134. ——— Lunatics (Scotland) (amended).
135. ——— Caledonian and Crinan Canals (amended by the Select Committee).

Factories—Reports of the Inspectors (30th April, 1857).

Public General Acts—Cap. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14.

Delivered on July 21st.

120. East India (Railways)—Return.
137. Audit Office—Return.
176. Public Income and Expenditure (year ended 30th June, 1857)—Account.
191. East India Company (War in China)—Estimate.
182. Mayo County Election Petition—Minutes of Evidence.
187. Galway Town Election Petition—Minutes of Evidence.
121. Bills—Smoke Nuisance (Scotland) Abatement (amended).
136. ——— Ecclesiastical Commission (amended by the Select Committee).
137. ——— Oxford University.

Delivered on July 22nd.

147. Ordnance Survey—Papers.
159. Liverpool Town Dues, &c.—Returns.
172. Land Transport Corps—Report and Evidence.
150. Naval Prize Money, &c.—Account.
156. Chamber of London—Annual Accounts.
160. Broadhaven Harbour, &c.—Report of Captain Bedford.
175. Burials—Copies of Petitions or Memorials.
193. Persian Expedition—Supplemental Estimate.

PATENT LAW AMENDMENT ACT.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

[*From Gazette, July* 24.]

Dated 20th May, 1857.

1418. Thomas Knight, Upton, Cheshire—An improved cutter and cultivator of land.

Dated 25th May, 1857.

1467. Henry William Ford, Gloucester—Improvements in apparatus for facilitating the draft and locomotion of carriages.

Dated 1st June, 1857.

1544. Henry Davis Pochin and James Woolley, Manchester—Improvements in the manufacture of gum from amylaceous substances.

Dated 6th June, 1857.

1600. Henry Clarke, Horncastle, Lincolnshire—Improvements in the rotary engines.

Dated 12th June, 1857.

1644. John Elce and Samuel Hartley, Manchester—Improvements in machinery for preparing moulds for casting iron or other metals.

Dated 16th June, 1857.

1680. James Cocker, Liverpool—An improved construction of gauge for measuring wire and other articles.

Dated 20th June, 1857.

1734. Lambert Cowell, Adelphi—An improved machine for teaching the art of swimming.

Dated 24th June, 1857.

1759. Richard Morcom, Redruth, Cornwall—Improvements in dressing ores.

Dated 25th June, 1857.

1776. Charles Grafton Page, Washington City, U.S.—Improvements in cylindrical door bolts.
1778. Ernest Auguste Bourry, St. Gall, Switzerland—Improvements in kilns or ovens for burning or baking bricks, tiles, and other earthen or ceramic matters.
1780. John Loach, Birmingham—A metallic air-tight coffin.
1782. Elijah James Crocker, Liverpool—Improvements in the rigging of ships and other vessels. (A communication.)
1786. Jacob Green, Onehouse, Stowmarket, Suffolk—Certain improvements applicable to bedsteads and other articles of furniture, for the purpose of excluding therefrom bugs or other similar insects.
1788. James Lamb Hancock, Pentonville—Improvements in means or apparatus for washing or cleansing.
1790. William Bough, Bunhill-row—Improvements in lamps for burning resin and other oils and fluids, also an improvement in Argand gas burners.
1791. Stephen Bourne, 4, Leonard's-square, Kentish-town—An improvement in the manufacture of felted fabrics.
1792. Howard Glover, Lambeth—An improvement in pump buckets.

Dated 26th June, 1857.

1794. Robert Hattersley, Ardwick, near Manchester—Improvements in machinery for distributing and setting up or composing type.
1796. William Parsons, Brighton—Improvements in fittings to door handles and spindles.
1798. William Crook, Gilbert Rushton, and Joseph Crowther, Blackburn—Improvements in looms.
1800. Michael Michaelis and John Clemson, Manchester—Improvements in the production of ornamental textile fabrics by printing.
1802. Stanislas Gaudrion, 53, Chancery-lane—An improvement in screw-propellers. (A communication.)

Dated 27th June, 1857.

1804. Joseph Pollard, Highdown, near Hitchin, Herts—Improvements in machinery or apparatus for distributing manure.
1806. John Green, Newcastle-upon-Tyne, and William Coppin, junr., Blyth—The preservation of timber.
1808. Pierre Eugène Liger, Rouez, France—Improvements in grinding mills.
1810. George Swindells and Jonathan Arnold, Bollington, near Macclesfield—Certain improvements in spinning and doubling yarns, and in machinery or apparatus of the kind commonly known as mules and twining jennies.
1812. William Edward Newton, 66, Chancery-lane—Improved machinery for grinding the teeth of card cylinders. (A communication.)

Dated 29th June, 1857.

1814. Narcisse Laurent, Paris—Improvements in the process of dressing and manufacturing shammy leather.
1818. James Lawrence, Colnbrook—Improvements in apparatus for brewing.
1820. Henry Gilbee, 4, South-street, Finsbury—Improvements in machinery for moulding vermicelli and other paste. (A communication.)
1822. Gustav Adolph Buchholz, Strasbourg, France—Improved machinery for hulling and cleaning rice, wheat, and other grain.

Dated 30th June, 1857.

1826. Isidore Charles Cloet, Ghent, Belgium—An improved rice and barley-mill.
1830. William Pole, Birdcage-walk—Improved means for supporting telegraph wires. (A communication.)

Dated 1st July, 1857.

1832. Thomas Brewer, Neithrop, Banbury, Oxfordshire—Improvements in machines for cutting and reducing turnips or other vegetable substances.
1834. Carl Johann Lawrence Leffler, Westbourne-terrace—Improved machinery for cutting corks, bungs, and other similar articles. (A communication.)

Dated 2nd July, 1857.

1838. Andrew Smith, Princes-street—Improvements in the construction of life boats and other boats or vessels.
1840. Augustus Philibert Malard, 39, Rue de l'Echiquier, Paris—Certain improvements in filtering water and other liquids.
1842. Thomas Moy, Clifford's-inn—Improvements in the mode of working steam engines.
1844. Edward Taylor Bellhouse, and William John Dorning, Manchester—Improvements in steam boilers.
1846. George Davies, 1, Serle-street, Lincoln's-inn—An improved marine steam-engine governor. (A communication.)
1848. Tomyns Browne, Liverpool—An instrument for ascertaining the true or actual acclivity and declivity of bodies.
1850. William Rowan, Belfast—Improvements in steam boilers and furnace flues.

Dated 4th July, 1857.

1865. Michael Henry, 77, Fleet-street—Improvements in machinery or apparatus for cutting vegetable substances. (A communication.)
1867. George Cooper, Sheffield—Improvements in safety lamps.
1869. Joseph Mills, Leicester—An improved method of coverin ricks, booths, tents, and such like places.

Dated 6th July, 1857.

1871. Thomas Bowden, Pendleton—Improvements in apparatus for discharging the water resulting from the condensing of steam used in apparatus heated by steam.
1873. Frank Clarke Hills, Deptford, Kent—Improvements in the manufacture of sulphuric acid.

Dated 7th July, 1857.

1875. John Alison, Hainault Forest, Essex—Improvements in preparing vegetable substances for feeding animals, and in apparatus for that purpose.
1877. Wilhelm Adolf von Canig, Leipsic, Saxony—A new or improved compound or composition to be used as a substitute for gum, paste, and other adhesive materials, and for finishing, sizing, or stiffening fabrics and other articles to which the same is or may be applicable.
1879. Joseph Platt, Audlem, Cheshire—Improvements in gun locks.
1881. John Speight, Bradford—Improvements in wool combing, and in machines known as "Colliers's combing machine."
1883. Peter Hippolyte Gustave Bérard, 323, Rue St. Denis, Paris—Improvements in manufacturing azotic cotton or pyroxile for photographic and other purposes.
1885. John Louis Jullion, Foot's Cray, Kent—The mechanical and chemical separation of solids from fluids.
1887. Richard Archibald Brooman, 166, Fleet-street—The manufacture upon circular frames of a fabric suitable for petticoats and other garments, curtains, and other articles of furniture. (A communication.)
1889. William Burgess, Newgate-street—Improvements in reaping and mowing machines.
1891. Michael Henry, 77, Fleet-street—Improvements in railways and waggons used therewith in loading and discharging coals, stones, ballast, earth, and other materials. (A communication.)

Dated 8th July, 1857.

1893. John Talbot Pitman, 67, Gracechurch-street—A conical tent. (A communication.)
1895. Thomas Frederick Henley, Bromley—Improvements in the preparation or manufacture of certain beverages or liquors of the nature and character of home-made wines, and in the means of obtaining the same.
1897. Joseph Gibbs, Abingdon-street—Improvements in extracting gold and silver from their matrices, and from other substances or materials with which they are combined, mixed, or associated.
1899. Edward Taylor Bellhouse, and William John Dorning, Manchester—Certain improvements in hydraulic presses.
1901. Louis Albert Bahn, Greek-street, Soho—Improvements in galvanizing metals, and in the apparatus employed therein.
1903. Robert Moore, Isleworth—Improvements applicable to navigable vessels and the propelling thereof.

Dated 9th July, 1857.

1905. Charles Patrick Stewart, and David Graham Hope, Manchester—Improvements in the valve gear of locomotive and other engines.
1907. John Dunsmore Mac Nicol—Improvements in machinery or apparatus for cylinder printing.
1909. John Scott Russell, Millwall—Improvements in apparatus and slips for moving ships and vessels out of, and into, the water.
1911. Dr. Cosmo Logie, Royal Horse Guards—An improvement in, or addition to, fire-arms.
1913. Florentin Delmas, Paris—Improvements in ventilating ships, mines, and other places.
1915. William Johnson, 47, Lincoln's-inn-fields—Improvements in capstans. (A communication.)

Dated 10th July, 1857.

1917. Charles de Bergue, Dowgate-hill—An improvement or improvements in the manufacture of apparatus for condensing and cooling purposes.
1919. Isac Louis Pulvermacher, Paris—Improvements in pipes and tubes for smoking.
1921. Sir Francis Charles Knowles, Bart., Lovell-hill, Berkshire—Improvements in the manufacture of iron.
1923. John Gill, Newtyle, Forfar, N.B.—Improvements in reaping machines.
1925. James Moon, Malton, and Robert Belt and George Ewbank, Lutton, Yorkshire—An improved agricultural implement.
1927. Webster Woodman, 14, Boulevart Montmartre, Paris—Improvements in railroad wheels. (A communication.)
1929. Richard Hornsby, junr., Spittlegate, near Grantham, Lincolnshire—Improvements in apparatus for hummelling, removing the husk from, and cleansing grain.

Dated 11th July, 1857.

1931. Edouard Primard, Paris—Improvements in treating auriferous, argentiferous, or other metallic ores.
1933. Datus Ensign Rugg, New York, U.S.—An improvement in water-guages for steam boilers.
1935. François Burot, Rue Neuve des Mathurins, 57, Paris—A new process for gilding and plating over silk, cotton, wool, and all other textiles and fibrous matters.
1939. Alexandre Amand Noel Dépinhay-Pre-Hamon, Paris—Improvements in windmills.

Dated 13th July, 1857.

1941. Henry Starr, Liverpool—Improvements in hinges. (A communication.)
1943. Nicholas Williams and Thomas Williams, Helston Foundry, Helston, Cornwall—Improvements in the form and arrangement of the driving gear of thrashing machines, and in the form and mode of applying the straw shakers to such said machines.
1945. James Heywood Whitehead, Royal George Mills, Saddleworth, Yorkshire—Improvements in milling endless cloths.
1947. William Edward Newton, 66, Chancery-lane—Improvements in the manufacture or reduction of platinum. (A communication.)
1949. William Edward Newton, 66, Chancery-lane—An improved mode of preventing incrustations in steam boilers. (A communication.)

Dated 14th July, 1857.

1951. Barnabas Urry, Vectis Works, Newport, Isle of Wight—Improvements in seed-drills.
1953. Frederick Crace Calvert, Manchester, and Charles Lowe, Halifax—Improvements in the manufacture of size.

WEEKLY LIST OF PATENTS SEALED.

July 24th.

218. Charles James Wiggs.
238. William Allen Turner.
258. George Edward Dering.
260. Charles Edward Symonds.
263. George and Joseph Sampson, and Elijah Ledger.
288. Duncan Morrison.
296. William Dray.
301. Jean François Dudebout.
324. Charles de Bergue.
331. Philipp Schafer and Frederick Schafer.
354. Joseph Nicolas Victor Cadiat.
376. Henry Willis.
387. August Frederick William Partz.
422. Charles Crossley, Dan Leeming, and John Crossley.
437. Andrew Barclay Walker.
448. William Edward Newton.
536. Claude François Latruffe.
583. William Edward Newton.
632. Thomas Brown.
687. William Edward Newton.
839. Charles Cowper.
846. George White.
879. John Henry Johnson.
894. Robert Alfred Wright and Louis Jules Fouche.
1008. Robert Turnbull.
1192. Wilson Ager.
1224. G. Tomlinson Bousfield.
1393. Richard Bradley and William Craven.

July 28th.

265. Charles de Bussy.
267. William Weild.
270. John Talbot Pitman.
277. Frederick William Campin.
282. Henry Smith.
283. Thomas Affleck.
284. James Owen.
298. Cotton Symonds.
305. Robert Morrison.
307. Thomas William Rayner.
308. James Hunt.
340. Rd. Archibald Brooman.
358. Felix Lieven Bauwens.
359. Thomas Brown and George Parry.
360. Rd. Archibald Brooman.
361. Rd. Archibald Brooman.
372. David Falconer Wright.
395. Henry Heald and Arthur Heald.
410. Peter Hubert Desvignes.
432. George Hardstaff.
441. Josiah Firth and Joseph Crabtree.
489. William Clark.
508. John Whitehead.
553. Louis Emile Ossian Degrand.
598. James Murphy.
608. Charles Pauvert.
609. Charles Pauvert.
610. Charles Pauvert.
753. William Mac Naught.
1447. Frederick Walton and John Pinson.

PATENTS ON WHICH THE STAMP DUTY OF £50 HAS BEEN PAID.

July 20th.

1604. John Knight and James Stubbs.
1621. Richard Roberts.

July 22nd.

1616. William Septimus Losh.
1630. Ephraim Hallum.
1633. Thomas Bell and Henry Scholefield.

July 24th.

1627. Francis Preston.
1643. Louis Christian Koeffler.
1650. Auguste Edouard Loradoux Bellford.
1667. Amable Hippolyte Petit.

July 25th.

1661. Alexander Law.
1732. Thomas Waterhouse.

WEEKLY LIST OF DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

No. in the Register.	Date of Registration.	Title.	Proprietors' Name.	Address.
4010	July 24.	The Corded Leopold Shirt Collar	Jas. Welch and John Stewart Nicholson	16 and 17, Cheapside.
4011	„ 25.	The Inverted Postage and Receipt Stamp Damper	White and Ball...........................	9, St. John's-square, Clerkenwell.
4012	„ 27.	Curtain Support for Wash-hand Stands, Windows, and other situations where curtains are required..	Abel Stokes	Birmingham.
4013	„ 28.	Knee Protector	Joseph Hutchings	4, Charles-street, Trevor-square, Brompton.